

WHAT IS CLAIMED:

1. A method of hot-filling and capping a polymer container, the container defining head space area above a level of liquid in the filled container, comprising:

providing one of the closure and the head space area of the container with a hole covered with hydrophobic air permeable membrane;

filling the container with hot liquid;

applying the closure to the filled container;

allowing the filled container to cool; and

applying an air tight seal over the membrane-covered hole.

2. The method of Claim 1 wherein hydrophobic air permeable membrane comprises expanded polytetrafluoroethylene.

3. The method of Claim 1 wherein hydrophobic air permeable membrane comprises polypropylene.

4. The method of Claim 1 wherein the membrane has pores sized from about 0.3 to 5 microns.

5. The method of Claim 1 wherein the membrane has pores sized from about 0.4 to 2 microns.

6. The method of Claim 1 wherein the membrane has pores sized from about 0.5 to 1.5 microns.

7. The method of Claim 1 wherein the membrane has pores

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having an average of about 1.0 micron.

8. The method of Claim 1 wherein the hole is sized between about 50 and 100 microns.

9. The method of Claim 1 wherein the seal comprises a dryable coating.

10. The method of Claim 1 wherein the dryable coating comprises a UV activated sealant.

11. The method of Claim 1 wherein the dryable coating comprises a paint.

12. The method of Claim 1 wherein the seal comprises a semi-transparent adhesive.

13. The method of Claim 1 wherein the seal comprises an air tight membrane with a pressure-sensitive adhesive on one surface thereof.

14. The method of claim wherein the seal comprises a composition which solidifies upon exposure to actinic radiation.

15. A closure cap adapted to be applied to a hot-fill container comprising:

a top surface having an outer edge with a skirt portion depending therefrom, the top surface defining a hole therethrough;

a hydrophobic, air permeable membrane secured to the cap so as to fill the hole; and

an air-tight seal over the portion of the membrane

filling the hole.

16. The closure cap of Claim 15 in which the hydrophobic air permeable membrane is secured to the inside surface of the top and further comprises a liner applied to the inside surface of the cap, the liner having a hole in registration with the hole in the top surface and overlying the hydrophobic air permeable membrane.

17. The closure cap of Claim 15 wherein hydrophobic air permeable membrane comprises expanded polytetrafluoroethylene.

18. The closure cap of Claim 15 wherein hydrophobic air permeable membrane comprises polypropylene.

19. The closure cap of Claim 15 wherein the membrane has pores sized from about 0.3 to 5 microns.

20. The closure cap of Claim 15 wherein the membrane has pores sized from about 0.4 to 2 microns.

21. The closure cap of Claim 15 wherein the membrane has pores sized from about 0.5 to 1.5 microns.

22. The closure cap of Claim 15 wherein the membrane has pores having an average of about 1.0 micron.

23. The closure cap of Claim 15 wherein the hole is sized between about 50 and 100 microns.

24. The closure of Claim 15 wherein the seal comprises a dryable coating.

25. The closure of Claim 15 wherein the dryable coating

comprises a UV activated sealant.

26. The closure cap of Claim 15 wherein the dryable coating comprises a paint.

27. The closure cap of Claim 15 wherein the seal comprises a semi-transparent adhesive.

28. The closure cap of Claim 15 wherein the seal comprises an air tight membrane with a pressure-sensitive adhesive on one surface thereof.

29. The closure cap of claim 15 wherein the seal comprises a composition which solidifies upon exposure to actinic radiation.

30. A hot-fill container defining a head space area above the level to which the container is to be filled with liquid, the head space area defining a hole therethrough;

a hydrophobic, air permeable membrane secured to the container so as to cover hole; and

an air tight seal over the portion of the membrane covering the hole.

31. The container of Claim 30 wherein hydrophobic air permeable membrane comprises expanded polytetraflouroethylene.

32. The container of Claim 30 wherein hydrophobic air permeable membrane comprises polypropylene.

33. The container of Claim 30 wherein the membrane has pores sized from about 0.3 to 5 microns.

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34. The container of Claim 30 wherein the membrane has pores sized from about 0.4 to 2 microns.

35. The container of Claim 30 wherein the membrane has pores sized from about 0.5 to 1.5 microns.

36. The container of Claim 30 wherein the membrane has pores having an average of about 1.0 micron.

37. The container of Claim 30 wherein the hole is sized between about 50 and 100 microns.

38. The container of Claim 30 wherein the seal comprises a dryable coating.

39. The container of Claim 30 wherein the dryable coating comprises a UV activated sealant.

40. The container of Claim 30 wherein the dryable coating comprises a paint.

41. The container of Claim 30 wherein the seal comprises a semi-transparent adhesive.

42. The container of Claim 30 wherein the seal comprises an air tight membrane with a pressure-sensitive adhesive on one surface thereof.

43. The container of claim 30 wherein the seal comprises a composition which solidifies upon exposure to actinic radiation.

44. A closure cap adapted to be applied to a hot-fill container comprising:

a top surface having an outer edge with a skirt portion

depending therefrom, the skirt portion defining a hole therethrough;

a hydrophobic, air permeable membrane secured to the cap so as to fill the hole; and

an air-tight seal over the portion of the membrane filling the hole.

45. The closure cap of Claim 44 wherein hydrophobic air permeable membrane comprises expanded polytetrafluoroethylene.

46. The closure cap of Claim 44 wherein hydrophobic air permeable membrane comprises polypropylene.

47. The closure cap of Claim 44 wherein the membrane has pores sized from about 0.3 to 5 microns.

48. The closure cap of Claim 44 wherein the membrane has pores sized from about 0.4 to 2 microns.

49. The closure cap of Claim 44 wherein the membrane has pores sized from about 0.5 to 1.5 microns.

50. The closure cap of Claim 44 wherein the membrane has pores having an average of about 1.0 micron.

51. The closure cap of Claim 44 wherein the hole is sized between about 50 and 100 microns.

52. The closure of Claim 44 wherein the seal comprises a dryable coating.

53. The closure of Claim 44 wherein the dryable coating comprises a UV activated sealant.

54. The closure cap of Claim 44 wherein the dryable coating comprises a paint.

55. The closure cap of Claim 44 wherein the seal comprises a semi-transparent adhesive.

56. The closure cap of Claim 44 wherein the seal comprises an air tight membrane with a pressure-sensitive adhesive on one surface thereof.

57. The closure cap of claim 44 wherein the seal comprises a composition which solidifies upon exposure to actinic radiation.